~~***** CONFIDENTIAL *****~~
~~***** PRE-DECISIONAL DOCUMENT *****~~

~~SUMMARY SCORESHEET~~
~~FOR COMPUTING~~ PROJECTED HRS SCORE

SITE NAME: PACIFIC FRUIT EXPRESS CAR REPAIR SHOP

CITY, COUNTY: TUCSON, PIMA COUNTY

EPA ID #: AZD045804325 **EVALUATOR:** TERYL K. NUCKOLS

~~PROGRAM ACCOUNT #~~: FAZ03168BA **DATE:** AUG. 17, 1991

Lat/Long: _____ **T/R/S:** T14S/R14E/S20

THIS SCORESHEET IS FOR A: PA ____ SSI ____ LSI ____

SIRe X PA Redo ____ Other (Specify) _____

RCRA STATUS (check all that apply):

X Generator ___ Small Quantity Generator ___ Transporter ___ TSDF

___ ~~Not~~ Listed in RCRA Database as of (~~date of printout~~) 8/18/80

STATE SUPERFUND STATUS:

___ BEP (date) / / ___ WQARF (date) / /

___ No State Superfund Status (date) / /

	S pathway	S^2 pathway
Groundwater Migration Pathway Score (S_{gw})	76.73	5,887.49
Surface Water Migration Pathway Score (S_{sw})	—	—
Soil Exposure Pathway Score (S_s)	—	—
Air Migration Pathway Score (S_a)	8.36	69.89
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		5,957.38
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		1,489.35
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$		38.59

*Pathways not assigned a score (explain):
Surface Water and soil were not evaluated in order to expedite the evaluation of the site, and since they appeared to contribute little to the total score.

>/hrs 21-May-1991

GROUNDWATER MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Maximum Value	Projected Score	Rationale	Data Qual.
Likelihood of Release				
1. Observed Release	550			
2. Potential to Release				
2a. Containment	10	10	1	H
2b. Net Precipitation	10	1	2	H
2c. Depth to Aquifer	5	3	3	H
2d. Travel Time	35	35	4	H
2e. Potential to Release [Lines 2a x (2b+2c+2d)]	500	390		
3. Likelihood of Release (Higher of lines 1 or 2e)	550	390		
Waste Characteristics				
4. Toxicity/Mobility	a	100	5	H
5. Hazardous Waste Quantity	a	100	6	H
6. Waste Characteristics (lines 4 x 5, then use Table 2-7)	100	10		
Targets				
7. Nearest Well	50	20	7	H
8. Population[d]				
8a. Level I Concentrations	b	0	8	H
8b. Level II Concentrations	b	0	8	H
8c. Potential Contamination	b	1,598.2	7,9	H
8d. Population (lines 8a+8b+8c)	b	1,598.2		
9. Resources	5	5	10	E
10. Wellhead Protection Area	20	—		
11. Targets (lines 7+8d+9+10)	b	1,623.2		
Likelihood of Release				
12. Aquifer Score [(Lines 3 x 6 x 11)/82,500][c]	100	76.73		
Groundwater Migration Pathway Score				
13. Pathway Score (Sgw), (highest value from line 12 for all aquifers evaluated)	100	76.73[c]		

a Maximum value applies to waste characteristics category.
b Maximum value not applicable.
c Do not round to the nearest integer.
d Use additional tables.

/hrs

Aquifer Evaluated ALL UNITS ARE INTERCONNECTED UNDER THE HRS

21-May-1991

GROUNDWATER PATHWAY CALCULATIONS

8. Population

Actual Contamination

Well Identifier	Contaminant Detected	Concentration (Note Units)	Benchmark	(A) Apportioned Population Well Serves	(B) Level* Multip.	(A x B)

* Multipliers
- Level I = 10
- Level II = 1

Sum (AXB) Level I

Sum (AXB) Level II

Potential Contamination

Distance (miles)	Total Number of Wells Within Distance Ring	Total Population Served by Wells Within Distance Ring	Distance-Weighted Population Values "Other Than Karst" (Table 3-12)* (A)
0 to 1/4	3	3,038	5,214
>1/4 to 1/2	1	1,319	1,013
>1/2 to 1	1	1,319	523
>1 to 2	8	10,550	2,939
>2 to 3	9	11,869	2,122
>3 to 4	28	38,245	4,171
		Sum (A)	15982

Potential contamination = $\frac{\text{Sum (A)}}{10}$ = 1,598.2

* For drinking water wells that draw from a karst aquifer, see the Distance-Weighted Population Values for "Karst" in Table 3-12.

/hrs

Aquifer Evaluated ALL UNITS ARE INTERCONNECTED UNDER THE HRS

21-May-1991

AIR MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Maximum Value	Projected Score	Rationale	Data Qual.
Likelihood of Release				
1. Observed Release	550			
2. Potential to Release[e]				
2a. Gas Potential	500	450	11	H
2b. Particulate Potential	500	0		
2c. Potential to Release (higher of lines 2a and 2b)	500	450		
3. Likelihood of Release (higher of Lines 1 or 2c)	550	450		
Waste Characteristics				
4. Toxicity/Mobility	a	100	12	H
5. Hazardous Waste Quantity	a	100	6	H
6. Waste Characteristics (lines 4 x 5, then use Table 2-7)	100	10		
Targets				
7. Nearest Individual	50	20	13	H
8. Population[e]				
8a. Level I Concentrations	b	—		
8b. Level II Concentrations	b	—		
8c. Potential Contamination[e]	b	128.3	14	H
8d. Population (8a+8b+8c)	b	128.3		
9. Resources	5	5	15	E
10. Sensitive Environments[e]				
10a. Actual Contamination	c	—		
10b. Potential Contamination	c	0	16	H
10c. Sensitive Environments (lines 10a+10b)	c			
11. Targets (Lines 7+8d+9+10c)	b	153.3		
Air Pathway Migration Score				
12. Air Pathway Score (Sa) [(lines 3 x 6 x 11)/82,500]	100	8.36[d]		

a Maximum value applies to waste characteristics category.
b Maximum value not applicable.
c No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
d Do not round to nearest integer.
e Use additional tables.

/hrs

21-May-1991

~~AIR PATHWAY~~ CALCULATIONS

2. Potential to Release

~~Gas~~ Potential to Release

	Source Type (Name)	Gas Containment Factor Value (Table 6-3)	Gas Source Type Factor Value (Table 6-4)	Gas Migration Potential Factor Value (Table 6-7)	Sum	Gas Source Value
		(A)	(B)	(C)	(B+C)	A x (B+C)
1.	SURFACE IMPOUNDMENT	10	28	17	45	450
2.						
3.						
4.						
				Gas Potential to Release Factor Value (Select the highest Gas Source Value)		450

Particulate Potential to Release

	Source Type (Name)	Particulate Containment Factor Value (Table 6-9)	Particulate Source Type Factor Value (Table 6-4)	Particulate Migration Potential Factor Value (Figure 6-2)	Sum	Particulate Source Value
		(A)	(B)	(C)	(B+C)	A x (B+C)
1.						
2.						
3.						
4.						
				Particulate Potential to Release Factor Value (Select the highest Particulate Source Value)		

/hrs

21-May-1991

AIR PATHWAY CALCULATIONS (CONTINUED)

8. Potential Contamination

Distance (miles)	Total Population Within Distance Ring	(A) Distance-Weighted Population Value (Table 6-17)
On a source (0)	400	522
>0 to 0.25	360	131
>0.25 to 0.5	2,073	88
>0.5 to 1	9,994	83
>1 to 2	40,460	266
>2 to 3	44,893	120
>3 to 4	62,722	73
	Sum of (A) =	1,283

Air Potential Contamination Factor Value = $\frac{\text{Sum of (A)}}{10}$ = 128.3

10. Sensitive Environments

Actual Contamination

Wetland or Type of Sensitive Environment	(A) Sensitive Environment Rating Value (Table 4-23)	(B) Wetland Rating Value (Table 6-18)	(A + B)
	Actual Contamination Factor Value [sum (A + B)]		

/hrs

PACIFIC FRUIT EXPRESS CAR REPAIR SHOP
SCORESHEET RATIONALE

1. Groundwater samples collected during the SSI did not show contamination, but were all taken from deeper wells. All units are interconnected under the HRS (1). According to facility representatives, shallow semi-perched groundwater has been sampled downgradient of the surface impoundment and has not been found to be contaminated (2).

   Containment:
   There is no liner or essentially impervious base for an underground tank, and the diking for the surface impoundment is unknown (1).

2. According to Figure 3-2 in the HRS, the net precipitation factor equals 1.

3. Regional groundwater at the site occurs at a depth of 210 feet below ground surface (1). Depth to the shallow semi-perched aquifer is unknown.

4. Travel time:
   Most of the units in the area of the site have a hydraulic continuity of greater than 10^{-3} cm/sec (1). There is a thin aquitard under the site (approximately two feet thick) (2).

5. Toxicity/Mobility:
   The following compounds were detected in soil samples collected at the site (1). The toxicity and mobility factors are as follows (3):

Substance	Toxicity	Water Solubility	Distribution Coefficient	Mobility	Tox/Mob
Lead	10,000	0.148	900	2×10^{-5}	
Chromium	10,000	79,000	850	0.01	100
PCE	100	200	36.2	0.01	

6. Waste Quantity:
   According to the SSI, the estimated volumes of the wastes at the site are as follows (1):

Source	Volume	Factor Value
surface impoundment	1,127,000 gallons	2,254
solvent tank	3,000 gallons	6
waste pile	667 cubic yards	266.8
		2,526.8 total

7. There are 400 employees at the facility. The on-site well provides industrial and drinking water for the facility. The well was sampled during the SSI and is not contaminated (1).

8. Several nearby and/or downgradient wells near the site were sampled during the SSI and were not found to be contaminated (1).

9. The total population served by the Tucson water system is 395,635 (1). All water in the system comes from groundwater, and there are approximately 300

wells currently in operation (1,4). Since there are so many wells, it appears likely that no single well contributes more than 40 percent of total production. Each well therefore serves the equivalent of 1,319 people. The population served by wells located within four miles of the site are as follows (5):

Distance (miles)	# Wells	Population	Value
0 to 1/4	3	3,038	5,214
>1/4 to 1/2	1	1,319	1,013
>1/2 to 1	1	1,319	523
>1 to 2	8	10,550	2,939
>2 to 3	9	11,869	2,122
>3 to 4	29	38,245	4,171

10. Assume that there are agricultural wells within four miles of the site.

11. Air Pathway, Potential to Release:

Gas Potential: Those sources available to release via gas are: the surface impoundment, the drums, and the waste pile. The compounds associated with these sources and available as a gas are: 1,1-dichloroethane; 1,1,1-trichloroethane; tetrachloroethylene; toluene; benzene; and cyclohexene; (1).

Compound	Gas Migration Potential
1,1-dichloroethane	17
1,1,1-trichloroethane	
tetrachloroethylene	
toluene	17
benzene	17
cyclohexene	17

Particulate Potential: The particulate air pathway does not appear to be as important, as most wastes are liquid, except for the waste pile, which appears to be contaminated with petroleum-related compounds (1).

12. Toxicity/Mobility (3):

Compound	Toxicity	Gas Mobility	Toxicity/Mobility
1,1-dichloroethane	10	1.00	
1,1,1-trichloroethane	10	1.00	
tetrachloroethylene	100	1.00	100
toluene	10	1.00	
benzene	100	1.00	100
cyclohexane	1	1.00	

13. There are 400 workers at the site. Assume that contamination is potential, not actual (1).

tn/pfecrs/clcr

14. The population working at the site or living within four miles of the site is as follows (1,6):

Distance (miles)	Population
0	400
>0 to 0.25	360
>0.25 to 0.5	2,073
>0.5 to 1.0	9,994
>1.0 to 2.0	40,460
>2.0 to 3.0	44,893
>3.0 to 4.0	62,722

15. Assume that there is agriculture located within four miles of the site.

16. There are no sensitive environments known to exist within three miles of the site. Assume that there are no such environments within four miles.

SCORESHEET RATIONALE
REFERENCES

1. Arizona Department of Environmental Quality, Site Inspection Report, Pacific Fruit Express Car Repair Shop site (EPA ID # AZD045804325), Tucson, Arizona, March 7, 1989.

2. Hook, Todd, Environmental Systems, Inc., and Teryl K. Nuckols, Ecology and Environment, Inc.'s Field Investigation Team (E & E FIT), telephone conversation, August 16, 1991.

3. U.S. Environmental Protection Agency, Hazardous Substance Reference Table, April 2, 1991.

4. Miley, Terry, Tucson Water Department, and Sharron L. Reackhof, E & E FIT, telephone conversation, July 19, 1991.

5. Tucson Water Department, Well Location Map, Tucson, Arizona, September 1989.

6. U.S. Environmental Protection Agency, Office of Toxic Substances, "Geographical Exposure Modeling System," March 1989.

tn/pfecrs/clcr